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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,798	04/15/2004	Hiroshi Shinriki	ASMJP.149AUS	6654

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KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER	
ZERVIGON, RUDY	
ART UNIT	**PAPER NUMBER**
1763	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/23/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/23/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
eOAPilot@kmob.com

Office Action Summary	Application No.	Applicant(s)	
	10/824,798	SHINRIKI ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20 and 30-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20 and 30-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-20 and 30-40 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23, and 50 of copending Application No. 10960600 in view of Kim; Jae Ho et al. (US 6435428 B2).

Copending Application No. 10960600 does not teach what is discussed below.

Kim teaches a wafer reactor showerhead distributer (Figure 1b) with independent and unmixed gas injections (202b/201b) ahead of Kim's head surface (lower surface of 202; Figure 1b).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Kim's showerhead to Shinriki's apparatus.

Motivation to add Kim's showerhead to Shinriki's apparatus is for generating thin film uniformity as a result of using a showerhead with "two-stair structure" as taught by Kim (column 1; lines 10-15).

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-20 and 30-40' are rejected under 35 U.S.C. 103(a) as being obvious over Shinriki, Hiroshi et al (US 20050208217 A1) in view of Kim; Jae Ho et al. (US 6435428 B2).

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2). .

Shinriki teaches a gas-feeding apparatus (Figure 1A; [0181]) configured to be connected to an evacuatable reaction chamber (1; Figure 1A; [0181]) provided with a support (8; Figure 1A; [0181]) for placing a substrate (15; Figure 1A; [0182]) thereon, comprising: a gas-distribution head (3+13; Figure 1A) for introducing gases into the chamber (1; Figure 1A; [0181]) through a head surface (lower surface of 3; Figure 1A), comprising: a first plate (13; Figure 1A) having exclusively a first flow channel (starting at 13 through to 21; Figure 1A) for discharging a first gas (10; Figure 1A), through the first flow channel (starting at 13 through to 21; Figure 1A) and the head surface (lower surface of 3; Figure 1A) toward the support (8; Figure 1A; [0181]); and a second plate (3; Figure 1A) constituting the head surface (lower surface of 3; Figure 1A) and disposed under the first plate (13; Figure 1A), said second plate (3; Figure 1A) having both the first flow channel (starting at 13 through to 21; Figure 1A), at least one of which flow channels is coupled to an exhaust system (19; Figure 1A) for purging therefrom a gas present in the corresponding second flow channel without passing through the head surface (lower surface of 3; Figure 1A), said first and second plates being stratified parallel to each other in a direction perpendicular to their axial direction and being overlapped as viewed in the axial direction, said second plate (3; Figure 1A) being closer to the head surface (lower surface of 3; Figure 1A) than is the first plate (13; Figure 1A) – claim 1

Shinriki further teaches:

i. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 1, wherein at least the first flow channel (starting at 13 through to 21; Figure 1A) is coupled to the exhaust system (19; Figure 1A) for purging a gas present in the first flow channel (starting at 13

through to 21; Figure 1A) without passing through the head surface (lower surface of 3; Figure 1A), as claimed by claim 2

ii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 2, wherein the first flow channel (starting at 13 through to 21; Figure 1A) comprises a central distribution inlet and a cone-shaped distribution plate extending radially therefrom, as claimed by claim 8

iii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 1, further comprising an RF power source (25; Figure 1A) coupled to the gas-distribution head (3+13; Figure 1A) to exert RF power onto an interior of the reaction chamber (1; Figure 1A; [0181]), as claimed by claim 16

iv. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 2, wherein the first flow channel (starting at 13 through to 21; Figure 1A) is coupled to a source gas line (12; Figure 1A) and a purge gas line ("N2 Purge"; Figure 1A), and the second flow channel is coupled to an additive gas line and a purge gas line ("N2 Purge"; Figure 1A), as claimed by claim 17

v. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 1, which is connected to an evacuatable reaction chamber (1; Figure 1A; [0181]) provided with a support (8; Figure 1A; [0181]) for placing a substrate (15; Figure 1A; [0182]) thereon, as claimed by claim 18

vi. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 18, wherein a space between the head surface (lower surface of 3; Figure 1A) and the support (8; Figure 1A; [0181]) is coupled to an exhaust system (24; Figure 1A), as claimed by claim 19

vii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 19, wherein the exhaust system (19; Figure 1A) for purging therefrom a gas present in the first and the exhaust system (24; Figure 1A) for evacuating the space between the head surface (lower surface of 3; Figure 1A) and the support (8; Figure 1A; [0181]) are connected and merged to a single exhaust line, as claimed by claim 20

viii. wherein the first plate (13; Figure 1A) and the second plate (3; Figure 1A) are disposed parallel to each other, and the distribution plate (13; Figure 1A) has a cone shape – claim 31

ix. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 30, wherein the distribution plate (13; Figure 1A) is provided with a first gas (10; Figure 1A) inlet disposed in a central area of the distribution plate (13; Figure 1A) for introducing the first gas (10; Figure 1A) into the first section (14; Figure 1A), as claimed by claim 32

x. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 30, wherein the first section (14; Figure 1A) is coupled to the exhaust system (19; Figure 1A), wherein the first gas (10; Figure 1A) present in the first section (14; Figure 1A) is exhausted around an outer periphery of the distribution plate (13; Figure 1A), as claimed by claim 34

Shinriki does not teach:

i. a second flow channel which is for discharging a second gas through the second flow channel and the head surface (lower surface of 3; Figure 1A) toward the support (8; Figure 1A; [0181]), wherein there is no gas-mixing between the first flow channel (starting at 13 through to 21; Figure 1A) and the second flow channel – claim 1

ii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 1, wherein the second flow channel is coupled to the exhaust system (19; Figure 1A) for purging a gas present in the second flow channel without passing through the head surface (lower surface of 3; Figure 1A), as claimed by claim 3

iii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 1, wherein the first flow channel (starting at 13 through to 21; Figure 1A) and the second flow channel are both respectively coupled to exhaust system (19; Figure 1A)s for purging a gas present in the corresponding flow channel without passing through the head surface (lower surface of 3; Figure 1A), as claimed by claim 4

iv. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 2, wherein the first flow channel (starting at 13 through to 21; Figure 1A) has a volume which is larger than that of the second flow channel, as claimed by claim 5

v. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 2, wherein the first flow channel (starting at 13 through to 21; Figure 1A) and the second flow channel are overlapped as viewed in the axial direction, as claimed by claim 6

vi. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 6, wherein the first flow channel (starting at 13 through to 21; Figure 1A) and the second flow channel are gas-separately communicated with the head surface (lower surface of 3; Figure 1A) through a plurality of bores, respectively, wherein there is an overlapping area on the head surface (lower surface of 3; Figure 1A) where the first flow channel (starting at 13 through to 21; Figure 1A) and the second flow channel are overlapped as viewed in the

axial direction and both the bores of the first flow channel (starting at 13 through to 21; Figure 1A) and the bores of the second flow channel are provided, as claimed by claim 7

vii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 4, wherein the first plate (13; Figure 1A) has bores communicating the first flow channel (starting at 13 through to 21; Figure 1A), and the second plate (3; Figure 1A) bores communicating the first flow channel (starting at 13 through to 21; Figure 1A) and bores communicating the second flow channel, as claimed by claim 9

viii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 9, wherein the bores communicating the second flow channel and the head surface (lower surface of 3; Figure 1A) are disposed predominantly in a central area of the head surface (lower surface of 3; Figure 1A), whereas the bores communicating the first section (14; Figure 1A) and the head surface (lower surface of 3; Figure 1A) are uniformly distributed on the head surface (lower surface of 3; Figure 1A) including the central area, as claimed by claim 10

ix. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 10, wherein the second section has a prolonged shape in the gas-distribution head (3+13; Figure 1A), as claimed by claim 11

x. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 9, wherein the bores communicating the first flow channel (starting at 13 through to 21; Figure 1A) and the head surface (lower surface of 3; Figure 1A) have a total opening area on the head surface (lower surface of 3; Figure 1A) which is larger than that of the bores communicating the second flow channel and the head surface (lower surface of 3; Figure 1A), as claimed by claim 12

xi. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 9, wherein the bores communicating the first flow channel (starting at 13 through to 21; Figure 1A) and the head surface (lower surface of 3; Figure 1A) have an average bore size which is larger than that of the bores communicating the second flow channel and the head surface (lower surface of 3; Figure 1A), as claimed by claim 13

xii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 2, further comprising an RF power source (25; Figure 1A) for exerting RF power exclusively onto an interior of the second flow channel, as claimed by claim 14

xiii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 14, wherein the RF power source (25; Figure 1A) is coupled to the first plate (13; Figure 1A) which physically separates and insulates the first flow channel (starting at 13 through to 21; Figure 1A) from the second flow channel , and the head surface (lower surface of 3; Figure 1A) is grounded, as claimed by claim 15

xiv. A gas-feeding apparatus (Figure 1A; [0181]) adapted to be connected to an evacuatable reaction chamber (1; Figure 1A; [0181]) for atomic layer growth processing ([0005]), comprising: a distribution plate (13; Figure 1A); a first plate (13; Figure 1A) having exclusively first bores through which a first gas (10; Figure 1A) passes, wherein a first section (14; Figure 1A) is formed between the distribution plate (13; Figure 1A) and the first plate (13; Figure 1A), wherein the first gas (10; Figure 1A) is introduced into the first section (14; Figure 1A) and passes through the first bores; and a second plate (3; Figure 1A) having second bores through which a second gas passes, wherein a second section is formed between the first plate (13; Figure 1A) and the second plate (3; Figure

1A), wherein the second gas is introduced into the second section and passes through the second bores, said second plate (3; Figure 1A) further having third bores through which the first gas (10; Figure 1A) passes, wherein there is no gas communication between the third bores and the second bores, but there is gas communication between the third bores and the first bores, wherein the second plate (3; Figure 1A) is disposed above the support (8; Figure 1A; [0181]), the first plate (13; Figure 1A) is disposed above the second plate (3; Figure 1A), and the distribution plate (13; Figure 1A) is disposed above the first plate (13; Figure 1A), the first plate (13; Figure 1A) and the second plate (3; Figure 1A) are overlapped as viewed in their axial direction where the second plate (3; Figure 1A) has both the second bores and the third bores and the first plate (13; Figure 1A) has the first bores only, and at least one of the first or the second is coupled to an exhaust system (19; Figure 1A) which discharges the gas in the corresponding without passing through the corresponding bores, as claimed by claim 30

xv. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 30, wherein the second section is provided with a second gas inlet disposed in the vicinity of an outer periphery of the second section, as claimed by claim 33

xvi. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 30, wherein the second section is coupled to the exhaust system (19; Figure 1A), wherein the second gas present in the second section is exhausted through a second gas outlet disposed in the vicinity of an outer periphery of the second section, as claimed by claim 35

xvii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 30, wherein the second bores are disposed predominantly in a central area of the second plate (3; Figure 1A), as claimed by claim 36

xviii. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 30, wherein the first bores are distributed uniformly on the first plate (13; Figure 1A), and the third bores are disposed right under the respective first bores, as claimed by claim 37

xix. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 30, wherein the third bores have a total opening area which is larger than that of the second bores, as claimed by claim 38

xx. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 30, wherein the third bores have an average bore size which is larger than that of the second bores, as claimed by claim 39

xxi. The gas-feeding apparatus (Figure 1A; [0181]) according to Claim 36, wherein the second section is coupled to the exhaust system (19; Figure 1A) and is provided with a second gas inlet and a second gas outlet near an outer periphery of the second section, wherein the second section has a prolonged shape from the inlet to the outlet via the central area having the second bores, as claimed by claim 40

Kim teaches a wafer reactor showerhead distributer (Figure 1b) with independent and unmixed gas injections (202b/201b) ahead of Kim's head surface (lower surface of 202; Figure 1b).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Kim's showerhead to Shinriki's apparatus.

Motivation to add Kim's showerhead to Shinriki's apparatus is for generating thin film uniformity as a result of using a showerhead with "two-stair structure" as taught by Kim (column 1; lines 10-15).

Response to Arguments

5. Applicant's arguments with respect to claims 1-20 and 30-40 have been considered but are moot in view of the new grounds of rejection.

Conclusion

6. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry

of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

3/17/7